

CLAIMS

What is claimed is:

1. A method comprising:
 - receiving a schema;
 - receiving an instance;
 - receiving a display specification; and
 - generating a display.
2. The method according to claim 1, wherein the display specification further comprises presenters, wherein the presenters determine how the instance appears on the display.
3. The method of claim 2 further comprising actions, wherein the actions modify the presenters.
4. The method of claim 3 wherein the actions further comprises functions based on the schema selected from the group consisting of type checking and structural validation.
5. The method according to claim 1, wherein the display specification further comprises presenters selected from the group consisting of tree, tabbed, list, and form.
6. The method according to claim 5, wherein the presenters may have embedded within them presenters.

7. The method according to claim 1, wherein the display specification further comprises display attributes selected from the group consisting of, font name, font style, font size, icons, access mode, folder, hiding, editor, lines, graphics, sound, and color.

8. The method of claim 1 wherein the schema has a structure selected from the group consisting of a tree and directed graph .

9. The method of claim 1 wherein the schema and instance are well formed.

10. The method of claim 1 wherein the schema and instance are compliant with the extensible markup language (XML).

11. The method of claim 1 wherein the display specification is compliant with the extensible markup language (XML).

12. The method of 11 wherein the display specification supports node selection from the group consisting of xmlns:Tagname, any:Tagname, any:any, and xpath language.

13. The method of claim 11 wherein the display specification supports instance display attributes selected from the group consisting of hide, hide children, and override.

14. A processing system comprising a processor, which when executing a set of instructions performs the method of claim 1.

15. A machine-readable medium having stored thereon instructions, which when executed performs the method of claim 1.

16. The method of claim 1 further comprising receiving information from the generated display.

17. The method of claim 16 wherein the information is from a user input.

18. The method of claim 1 wherein the display specification further comprises presenters, wherein presenters may receive information from a user input.

19. The method of claim 18 further comprising actions, wherein the actions are based on information received by the presenters.

20. A method comprising:

dynamically generating a user interface based upon an XML schema and a display specification.

21. The method of claim 20 wherein the display specification is well formed.

22. The method of claim 20 wherein the display specification is compliant with the extensible markup language (XML).

23. The method of claim 20 wherein dynamically generating the user interface is further based upon an XML data instance.

24. The method according to claim 20, wherein the display specification further comprises presenters, wherein the presenters determine how an XML data instance appears on the user interface.

25. The method of claim 24, wherein the display specification further comprises actions, wherein the actions modify the presenters.

26. The method according to claim 20, wherein the display specification further comprises presenters selected from the group consisting of tree, tabbed, list, and form.

27. The method according to claim 26, wherein the presenters may have embedded within them presenters.

28. The method according to claim 20, wherein the display specification further comprises display attributes selected from the group consisting of font name, font style, font size, icons, access mode, folder, hiding, editor, lines, graphics, sound, and color.

29. The method according to claim 20, wherein the display specification further comprises an editor type selected from the group consisting of forms, check boxes, radio buttons, check lists, combobox, drop down list, tables, text, label, text window, and graphics.

30. The method of claim 29 wherein the display specification supports restriction of any schema element and/or attribute.

31. A processing system comprising a processor, which when executing a set of instructions performs the method of claim 20.

32. A machine-readable medium having stored thereon instructions, which when executed performs the method of claim 20.

33. The method of claim 20 further comprising receiving information from the dynamically generated user interface.

34. The method of claim 20 wherein the information is from a user input.

35. The method of claim 20 wherein the display specification further comprises presenters, wherein presenters may receive information from a user input.

36. The method of claim 35 further comprising actions, wherein the actions are based on information received by the presenters.

37. The method of claim 36 wherein the actions may communicate to a destination selected from the group consisting of another program, a database, a user interface, a data instance, a processor, an XML instance, a schema, the XML schema, and the display specification.

38. An apparatus for dynamically generating a user interface comprising:

- means for receiving a schema;
- means for receiving an instance;
- means for receiving a display specification; and
- means for generating a display.

39. The apparatus of according to claim 38, wherein the display specification is well formed.

40. The apparatus of claim 38, wherein means for generating a display further comprises means for a user to view information related to the instance.

41. The apparatus of claim 40 further comprising means for the user to modify information related to the instance.

42. The apparatus of claim 38 wherein the schema and instance are compliant with the extensible markup language (XML).

43. A machine-readable medium having stored thereon information representing the apparatus of claim 38.

44. The apparatus of claim 38 further comprising receiving information from the display.

45. The apparatus of claim 44 wherein the information is from a user input.

46. The apparatus of claim 38 wherein the display specification further comprises presenters, wherein presenters may receive information from a user input.

47. The apparatus of claim 46 further comprising actions, wherein the actions are based on information received by the presenters.

48. The apparatus of claim 47 wherein the actions may communicate to a destination selected from the group consisting of another program, a database, a user interface, a data instance, a processor, an XML instance, a schema, the XML schema, and the display specification.

49. A system comprising a processor, which when executing a set of instructions, performs the following:

- retrieves a schema;
- retrieves data;
- retrieves a display specification; and
- generates a user interface.

50. The system of claim 49 wherein the user interface format is generated dynamically based substantially upon the schema.

51. The system of claim 49 wherein the user interface further comprises:

- receiving a user input; and
- modifying the data.

52. The system of claim 49 further comprising transferring a payment and/or a credit.

53. The system of claim 49 further comprising receiving information from the user interface.

54. The system of claim 53 wherein the information is from a user input.

55. The system of claim 49 wherein the display specification further comprises presenters, wherein presenters may receive information from a user input.

56. The system of claim 55 further comprising actions, wherein the actions are based on information received by the presenters.

57. The system of claim 56 wherein the actions may communicate to a destination selected from the group consisting of another program, a database, another user interface, a data instance, a processor, an XML instance, the schema, the data, the user interface, and the display specification.

58. An apparatus for dynamically generating a user interface comprising:

- means for receiving an XML schema;

means for receiving an XML instance;
means for receiving an XML compliant display specification having actions and presenters;
means for generating a display based upon the display specification,
means for receiving a user input from the user interface, and
means for communicating to a program or processor through actions and presenters based upon the user input.